

# Faculty of Engineering

This is us

Schools and programmes

# FACULTY FACT SHEET



# **ON GOOD AUTHORITY**



# Message from the executive dean, Prof Liezl van Dyk

At the Faculty of Engineering, we want to change the world for the better and develop exceptional engineers by creating an industry-relevant environment built on cutting-edge research and academic excellence.

We are deeply invested in the progress of our students, whom we select with great care and attention. We want our graduates to have a solid academic foundation as well as practical applications experience in the world of work.

That is why groundbreaking research and commercialising our expertise - both at home and abroad - have always been our top priorities.

If you sign up for a qualification in the field of engineering, be prepared to grow, thrive, and succeed.

### THIS IS US

### Changing the world for the better through digital health

#### Cybathlon

The Cybathlon is a unique international competition that brings people with disabilities together with engineers and scientists to develop and test the latest assistive technologies. It is a great platform for showcasing innovations and promoting inclusivity for people with disabilities.

The NWU team comprises dedicated students from diverse backgrounds who share a common goal of developing a cutting-edge prosthetic leg and wheelchair for the race. Their aim is to design and create a device that is efficient, user-friendly, and able to withstand the rigorous demands of the competition. Their design has the potential to transform the lives of those living with mobility impairments in Africa.

# Changing the world for the better through responsible and sustainable energy

#### HySA (Hydrogen South Africa)

The Department of Science and Technology (DST) HySA Infrastructure Centre of Competence is co-hosted by the NWU and the Council for Scientific and Industrial Research (CSIR). It focuses on developing cost-competitive solutions for generating hydrogen by using renewable energy and other chemical carriers for hydrogen storage and distribution.

HySA Infrastructure's key facilities continue to develop state-of-the-art production technologies capable of delivering hydrogen on site and on demand for both stationary and non-stationary applications.

The overall vision of the high-frequency current transformer (HFCT) research, development and innovation (RDI) strategy is to facilitate the creation of wealth, jobs and intellectual property rights through the initiation of new high-technology industries based on minerals found on South African soil. It also aims to improve lives through the generation of clean and reliable electricity.

#### **Nuclear engineering**

Studies in nuclear engineering concern the optimal design, construction, operation, maintenance, and decommissioning of nuclear power plants.

#### **Clean stove project**

Sasol has launched a pilot community engagement project in Orangeville, Free State, next to the Vaal Dam. The Faculty of Engineering was tasked with managing the construction, installation, and monitoring of the air quality of 50 low-emission coal stoves for the community.

#### Research

#### Applications







Schools and programmes

Research

Applications

We are currently in the construction phase and will train members of the Orangeville community to assist with the installation. These unemployed people will be empowered to assist with the full-scale project that will be launched in 2024.

#### **Faculty facts**

#### The NWU's solar car, AKA Naledi 2.0

The NWU has competed in solar car challenges since 2012. The NWU solar car project stands out as a symbol of engineering excellence in the pursuit of energy efficient transport technology. This flagship inter-disciplinary project focuses not only on research and the application of new technologies in renewable energy, but also aims to inspire communities and prospective students to engage with renewable technology.

Naledi has competed in seven Sasol Solar Challenges to date. The last was in 2022, where Naledi 2.0 managed to secure an impressive fourth place in the #SasolSolarChallenge.

Naledi 2.2 also won the award for best structural design. Not only is it one of the most beautiful solar cars to look at, but it also has a unique rotating solar panel, which makes it one of a kind.

The NWU Faculty of Engineering is a dynamic training hub for world-class, versatile, and innovative engineers who are able to develop engineering solutions in fields such as integrated energy and Industry 4.0 (smart factories equipped for digital manufacturing).

#### Engineering is for anyone

The ratio of female to male engineering students dropped from 1:4 in 2018 to less that 1:3 in 2023. This is because of initiatives such as Femmegineering and InnovatHER, and an increase in the number of female lecturers who serve as role models and highlight the global realisation that engineering is for everyone.

#### **Engineering week for School Learners**

The NWU Faculty of Engineering hosts engineering days and engineering weeks that are especially designed for grade 8 to 12 learners with a keen interest in pursuing a career in engineering. The unique programme allows them to experience the NWU in Potchefstroom for four days (week event) and for a single day (day event). Registered learners become accuaitned with all four of the NWU's engineering schools.

#### Internationally known

Our BEng programmes meet the requirements of the Engineering Council of South Africa (ECSA) and international standards through the Washington Accord.

South Africa is a member of the accord, along with Australia, Canada, Chinese Taipei, Hong Kong China, India, Ireland, Japan, Republic of Korea, Malaysia, Russia, New Zealand, Singapore, Sri Lanka, Turkey, the United Kingdom and the United States of America.

Undergraduate students:

1 451

Postgraduate students: 306



Academic staff: 114

Support staff:

### SCHOOLS & PROGRAMMES













## The faculty consists of four schools:

#### Our faculty in numbers

(Staff and student figures as on 25 April 2024)



20

- Chemical Engineering
- Electrical, Electronic and Computer Engineering
- Industrial Engineering
- Mechanical Engineering

Click here to see which undergraduate programmes we offer

Click here for our post graduate diploma programmes

> Click here for our M and PhD programmes

# RESEARCH

#### **Research chairs**

- DSI/NRF Chair in Coal Research (SARChi)
- DSI/NRF Chair in Biofuels and Other Clean Alternative Fuels (SARChi)
- ESKOM EPPEI Specialisation Centre for Emission Control

#### **Research entities**

- Centre of Excellence in Carbon-based Fuels
- Unit for Energy and Technology Systems
- Multilingual Speech Technologies (MuST)

#### Hosted entities, platforms and institutes

 DSI HySA Infrastructure Centre of Competence in hydrogen production, storage, reticulation and safety codes and standards

# APPLICATIONS .....

#### **Admission requirements**

- Full matriculation exemption, with an APS score of at least 34
- Mathematics (70%+)
- Physical Sciences (70%+)
- Language (60%+)
- For prospective engineers who do not quite meet the minimum requirements, an optional engineering test may provide the necessary entrance.

#### How do I apply?

Please refer to our website for online application.

#### **Money matters**

The Bursary Office assists in the distribution of advertisements for various bursaries in the field of engineering. For more information, contact **Claudie Kroese** (018 288 1530) or **Angie Danster** (018 299 1985). For additional financial support, please contact 018 299 2672.

#### We want to hear from you

Phone 018 285 2453 or contact **Sonette Becker** (prospective students) or **Bernice Mackenzie** (faculty administrator) or visit our **webpage**.







